FORD CARS GROW UP BY MAGIC METHODS

Assemblying Process Is Even Faster Than It Was Before.

CONVEYOR RUSHES WORK

And Motor Is Started Without Cranking and Goes Out to Shipping Yard.

DETROIT, Mich., Feb. 28.—The Ford Motor Company, continually prodded by the extraordinary growth of its business to speed up its production and to discover time and labor saving devices, recently adopted a new system for the final assembling of cars which gives a visitor to the plant an astonishingly vivid impression of the significance of the Ford output. One sees thirty rear axles grow to real motor cars within an hour and what was, a comparatively few feet away, an inert piece of metal roll out the door a completed, complicated automobile running under its own power.

Heretofore the final assembling of Ford cars was a matter of shoving a section of a partially completed car on to a group of men, who put in another part and shoved the car on to the next group. Cars were thus kept moving along in four long rows. The same system now prevails, the assembling being done in four rows, each 900 feet long, but one of the four rows has the advantage of a new arrangement in the way of a conveyor. With the aid of the conveyor production is speeded up so that the line produces thirty completed cars in an hour. There is very keen rivalry among the workmen of the four different assembling lines, especially since the adoption of the mechanical conveyor, which is really being tested out.

At the beginning of the assembling line is a heap of rear axles. These are shoved along from group to group, until the skeleton of a chassis with wheels is evolved. Then the conveyor is reached. This consists merely of two endless rows of revolving steel wheels, set in grooves on which the car rests. Each car is coupled to the one in front, and a power device with coupling attachment and starting lever shoves the row of coupled skeletons up the line. Every few feet stands a group of workmen, under their own foreman, whose duty is to do one simple operation in assembling.

One group fastens on the gasolene tank; another drops in the complete engine; another fastens the steering apparatus in place; another puts on a certain bolt, &c. The long line of skeleton cars, always growing a little more like a real automobile every few feet, moves just slowly enough over the rollers of the conveyor to give each group of men time enough to do one special job. Naturally there can be no loafing. As soon as a radiator is on or a gasolene tank arranged the next car has crept up and is waiting to be similarly treated. The factory is so arranged that these various parts of the car are easily accessible. Some drop from the floor above by gravity just where they are needed, some are carried to their place in the assembling line by power conveyors.

When the upper end of the line is reached the car is complete, every part in place and ready to run. The back wheels are set spinning by the conveyor on which they rest. That starts the engine without the necessity of cranking it. A tester hops into the seat. There is a shove of a lever from behind which starts the car off the conveyor. The clutch is thrown in, and the car rolls off to the floor, the front wheels hit a swinging door so arranged that this action opens it automatically, and the car is in the shipping yard, where there remains only the jacking up of the rear wheels for a brief test before running onto the freight car.

The car you see rolling out into the yard is the very one you have watched grow in that line of magic. It is the evolution of that rear axle you saw sixty minutes ago 900 feet away.

SPECIAL RIDING QUALITIES.

Willys-Knight Has Features in the Way of Upholstery.

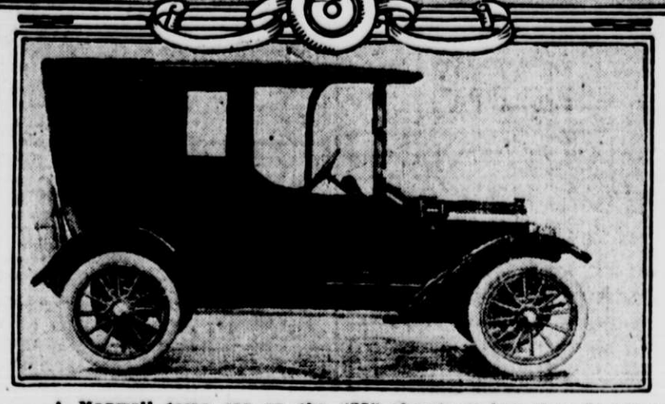
The new Knight-motored car which President John N. Willys of the Willys-Overland Company has put on the market embraces several radical changes from accepted American motor standards, among them that of upholstery. In designing the seat and back cushions of his new car, Mr. Willys has adhered to his original intention of making the Willys-Knight different.

The leather of the back and seat cushions is tufted in an entirely new manner. The tufts, so wide and deep as to resemble nothing so much as an easy chair in the home, run all the way from top to bottom of the seat backs and from front to back of the seat cushions. The accepted practice in automobile upholstery has always been to tuft the leather in squares, thus making a series of blocks on which the passenger rested. In the Willys-Knight upholstery there is practically an unbroken stretch of leather from top to bottom, doing away entirely with the succession of bumps and hills.

Special attention has been paid to the interior of the upholstery also. Curled hair has been brought from abroad and the springs on which this hair is built up are of special oil-tempered steel. The result is a comfortable cushion, as easy for the passenger as though it were pneumatic.

ATTRACTIVE CARS RECENTLY COME TO THE SALESROOMS

This is the model 15 Chandler Light Six, which is being shown by the Brady-Murray Motors Corporation. It recently made a great trip up through New England.



A Maxwell town car on the "25" chassis at less than $1,000 is this landaulet which the Holt-Chandler has on view at the local agency. The design bids fair to be very popular with those who want a small, convenient town car.

This Paige Detroit Glenwood touring model is equipped with electric lighting and starting, although in the moderate priced division. This Paige "36" will be strong this season, says Charles M. Kohn, the local representative.

AMERICAN CAR FIRST TO CROSS THE ANDES

Buick, Driven by Princeton Athlete, Accomplishes Great Feat.

O. G. Bennet, vice-president of the General Motors Export Company, received yesterday the following cable despatch from Santiago, Chile, advising that American grit and enterprise ha e achieved another notable feat in Latin America:

"Buick roadster, Martin driving, successfully crosses Andes. Arrived safely this morning Santiago. Highest, 13,000 feet. Everything snow above 11,000. Terrible cold. Two weeks in mountains. Crossing Continental Divide never before accomplished. Great excitement in Santiago and Valparaiso."

Many attempts have been made in the past five years by European drivers with French and German cars to successfully cross the Andes Mountains, which constitute the Great Continental Divide of South America. None of these attempts had been successful, but Johnson Martin, manager of the Buick Motor Company's branch in Buenos Ayres, Argentina, believed that the feat could be accomplished with a standard Buick roadster, and had been studying the mountain trails and arranging equipment for the attempt for a year past.

Martin, driving his Buick car, left Buenos Ayres January 31, crossing the cattle country, swamps and pampas of Argentina to the city of Mendoza, a distance of about 1,000 miles. After leaving Mendoza and entering the mountains no news of him whatever had been received until the cable despatch from Santiago, Chile, advising that the great feat had been accomplished. The Andes Mountains at this point are crossed by mule trail sufficiently wide for the use of pack animals but difficult even for men on foot and mules on account of the narrow trail cut along the mountain sides, together with the great altitude and intense cold.

The automobile was arranged with every possible item of equipment that might assist in mountain climbing, such as ropes, tackle, shovels, picks and even a small blasting outfit, also the usual South American rough country outfit. This outfit consists of two rolls of canvas over 100 feet in length, with heavy ground spikes at one end of each roll. When encountering ground too slippery or too precipitate for the wheels to hold by their own tractive effort these canvas strips are laid out to form a sort of roadway, are spiked down at the forward end, and the back ends of the canvas fastened to the rear wheels of the car. This converts the back wheels of the car into a sort of windlass and it is enabled in this way to wind itself out of difficulties under its own power that would otherwise be absolutely impossible.

Martin is a Princeton football man of the class of 1907 and has been the representative of the Buick Motor Company in South America since the Buick export organization, known as the General Motors Export Company, established its Buenos Ayres branch three years ago.

AUTOMOBILE SECURITIES.

	Bid.	Asked.
Ajax-Grieb Rubber Co com	200	—
Ajax-Grieb Rubber Co pf	99	102
Aluminum Castings pf	97	100
B F Goodrich Co com	23½	23¾
B F Goodrich Co pf	87½	90
Chalmers Motor Co com	84	87
Chalmers Motor Co pf	92	95
Firestone Tire and Rubber Co com	295	300
Firestone Tire and Rubber Co pf	108½	110½
Garford Co pf	80	90
General Motors Co com	73¼	74
General Motors Co pf	92½	93
Goodyear Tire and Rubber Co com	212	216
Goodyear Tire and Rubber Co pf	96	97½
Gray & Davis Co pf	90	97
International Motor Co com	—	5
International Motor Co pf	—	15
Kelly-Springfield Tire Co com	54	56
Kelly-Springfield Tire Co pf	125	130
Lozier Motor Co com	12	15
Lozier Motor Co pf	—	65
Maxwell Motor Co com	5¼	5½
Maxwell Motor Co 1st pf	27½	28
Maxwell Motor Co 2d pf	8	9½
Miller Rubber Co	129	131
Packard Motor Co pf	95	96½
Peerless Motor Co com	—	80
Peerless Motor Co pf	—	80
Pope Manufacturing Co com	1	3
Pope Manufacturing Co pf	15	40
Portage Rubber Co com	—	90
Portage Rubber Co pf	—	90
Reo Motor Truck Co	7½	8½
Reo Motor Car Co	18	18½
Rubber Goods Manufacturing Co pf	105	115
Stewart-Warner Speedometer Co com	56	57½
Stewart-Warner Speedometer Co pf	98	100
Studebaker Co com	25	25½
Studebaker Co pf	80	82½
Swinehart Tire Co	69½	70½
U S Rubber Co com	59	59½
U S Rubber Co 1st pf	101¾	101¾
White Co pf	107	110
Willys-Overland Co com	66	68½
Willys-Overland Co pf	92	95

ADVICE ON CONDUCT FOR USERS OF STREETS

Police Inspector Tells Pedestrians and Drivers How They Should Act.

Inspector Thomas Myers, in charge of the Traffic Division of the New York Police Department, in a lecture on "Traffic Regulations and Automobile Accidents," gave a list of "Safety First Don'ts" to both drivers and pedestrians at the West Side Y. M. C. A last Thursday night. He said:

"For the pedestrian:

"When you start to cross the street continue across; do not start back; the driver counts on your going forward.

"Keep your eyes on the traffic policeman. Do not take a chance crossing the street without a signal from him.

"Don't get off a street car without first looking for automobiles and wagons coming behind.

"Don't take chances. Take your time; wait for an opening. Don't be lost in mental abstraction. Don't look around at the sights.

"Don't think that the drivers should look out for you. Use a little care yourself.

"For the driver:

"Don't cut corners.

"Don't forget the rules of the road and their requirements.

"Don't stop at street intersections in such a manner as to block the cross walk.

"Don't be inconsiderate. There are lots of men who have demonstrated that a chauffeur can be a gentleman. Imitate these drivers and shun the reckless, inconsiderate ones.

"Don't forget that the men on the streets walking are generally men of families like yourselves, with others depending on their support.

"Don't get it into your head that the streets were made solely for you."

TO ADJUST ALL "NOBBIES."

5,000 Mile Basis of U. S. Tire Co. Applies to All Those Anti-Skids Out.

The announcement of the United States Tire Company informing motorists all over the world that adjustments on the "Nobby Tread" anti-skid tires would be made on a 5,000 mile basis has met with approval from automobilists in every section of the country. The 5,000 mile adjustment basis applies on all "Nobby Treads" now in use. That's going some and shows the confidence of the builders of this tire in the reliability of their product and the history of its mileage records.

This particular tread was placed on the market in 1909, not to fit a price but to put at the service of motor car users as low a cost-per-mile tire as could be built and to fit anti-skid requirements to a dot. To show how it has fulfilled its mission the manufacturers claim that it is now the largest selling high grade anti-skid tire in the world.

Buy Cars With "Surplus Profits."

"The attendance and actual buying at the automobile shows, and the optimism of the automobile dealers throughout the United States, indicates a record year in the motor car industry," says Howard A. Matthews of the Jackson Automobile Company. This buoyant activity coming, as it does, on top of a recent tight money market, leaves but one conclusion—1914 will be one of the most prosperous years in the history of the country in all branches of industry. For when the country is buying motor cars conditions must be good, as one might say that cars are bought with the 'surplus profits.'"

WIRE WHEELS A PROBLEM.

They're Not for Man Who Drives His Own Car, Says Silver.

The wire wheel is the latest to bid for favor, and speaking on a tendency in this direction C. T. Silver discloses that the builders of the Overland experimented with wire wheels before the 1914 model was announced but after a thorough test decided they were not practical for the Overland. No owner likes to see his machine dirty, and this is one of the principal reasons why wooden wheels are still the standard.

"A great majority of the 50,000 Overlands to be finished during the 1914 season," Mr. Silver points out, "are contracted for by owners who do not employ a chauffeur, and it was for their convenience the factory stuck to wooden wheels. No man who looks after his own car likes to spend hours cleaning it after a run over muddy roads. Wire wheels require extra care on account of the many exposed surfaces, and without thoroughly cleaning and drying after every run in bad weather they will rust out.

"On the new Overland the wooden wheels have been improved just as every other vital part of the car. The best quality second growth hickory is used and they are designed and built with a surplus of strength and ruggedness. Each piece of wood that goes into their makeup is subjected to a special oil treatment, precluding any chance of decay. This oil treatment also eliminates shrinkage or swelling of the wood, and a further precaution taken against looseness and rattling is the use of a bolt through every spoke where it joins the metal hub."

WEAKNESS IN RINGS CAUSES POWER LOSS

They Should Be Inspected for All Showings of Failing Force.

JUST AS TIRE LEAKS AIR

So Does a Piston Leak Compression When There Is a Bad Cylinder Fit.

The named power of an automobile or motor boat engine defines the amount of work it is able to do. Properly operated the engine may be expected to produce this power, but only for so long as every component part of it is faithful and efficient in the performance of the particular function for which it was designed. A defect in any part is a defect of the whole and no better or plainer proof of this can be found than in its application to piston rings. Faulty rings will counteract the highest grade fuel, the best carburation and the most exact valve action.

Where compression is poor the explosion is weakened and the horse-power of the motor reduced. There is no escaping the consequences of poor compression, and you cannot get good compression where badly fitting, improperly designed piston rings are used any more than you can hold air in a punctured tire.

The comparison is perfectly logical. Compressed gas in the cylinder head acts just as compressed air in an inflated tire. The weak point is discovered and the attack concentrated upon it. The results of this are more vividly brought to your attention in the case of the tire—in the case of the motor they are apt to be overlooked until the leakage reaches such proportions as to seriously cripple it.

The weak point in the engine is the piston ring. The ordinary type of ring most in use is not much more than a makeshift after all. It is wrong in design and inefficient in action. Only when perfectly new, when its spring is at its best, does it really succeed in obtaining proper compression. Its bearing on the cylinder wall soon becomes unequal and the gas begins to blow past it.

This ring, known as the one piece ring, has another serious defect in that the openings of a set of rings on one piston head often shift around into alignment, which provides not only another way for gas to escape but permits surplus oil to get up into the combustion chamber, causing carbonization, with all the troubles that result therefrom.

ROUGHING IT WITH JOY.

Packard President Is Touring in the Wild Southwest.

A month's tour over the rough going in the Southwest has been started by Henry B. Joy, president of the Packard company. The trip is being made in a Packard 4-48 touring car, which carries special camping equipment. Mr. Joy is accompanied by O. E. Hunt, assistant chief engineer.

During the entire trip the men will be independent of civilization, except when making stops for supplies. The car is provided with extra large gesolene and water tanks. By means of side and rear curtains, the body can be entirely enclosed. The car carries a complete camping outfit, including an alcohol stove, tent, sleeping bags, cooking utensils, food bags, airtight tin cans, electric lights and lanterns.

The trip, which started at Albuquerque, N. M., is being made for the purpose of selecting new scenic routes for motor tourists.

News and Doings of Cyclecar Folk

The Gadabout car, made in Newark, has a special body of German reed. The motor is four cylinder, water cooled. Philip Heseltine, treasurer and general manager, says orders for 2,000 cars already have been booked. The officers are: President, Robins A. Lau, New York city; first vice-president, Charles Vail, New York city; second vice-president, A. Vernon Clarke, New York; third vice-president, J. Dean Grandin; fourth vice-president, John J. Bush; secretary, Edwin M. Simpson; treasurer and general manager, Philip Heseltine. The designer of the Gadabout is Walter A. Gruenberg of Detroit.

F. A. Scheu of the Euclid Motor Car Company says Euclid cyclecars will compete in all events arranged for this type of car the coming year. E. S. Cameron is designer of the Euclid, which has temporary offices at 80 Broad street, this city. Demonstrators are being built at the factory, West Haven, Conn.

Holland has taken to the American built cyclecar. J. A. del Solar, export agent, of the Woolworth Building, New York city, has signed up the Delftsch Motoren Handle of Kolk 3, Delft, Holland, as Holland agent for the Imp cycle car, and the first demonstrating car will be shipped from the McIntyre factory at Auburn this week.

Orders for motors totalling $250,000 in value have been placed with the F. W. Spacke Machine Company of Indianapolis by F. K. Parke and Charles Trask of the International Cyclecar Company, 1790 Broadway, New York. It indicates an output of not less than 3,500 Economy cycle cars. C. Henry Larsen of the Oldsmobile company of New York has the Economy for this district.

NO ROYAL ROAD TO AUTOMOBILE MAKING

Hard Work, a Herculean Task, Says George Daniels of the Oakland.

MANY STEPS ARE NEEDED

And Care Must Be Observed Because Big Money Is Involved.

By GEORGE E. DANIELS,
President Oakland Motor Company.

There are no short cuts to success in the automobile business any more than there are in gaining knowledge. Both come by application and hard work. In business you cannot accomplish the miraculous in a short period. It takes time and money. Experiments must be made. Tests must be made. Metals must be tried and divers other things done. From the time drawings are started in the engineering department it takes, as a rule, a year before a car is ready to be placed on the market.

It is a herculean job. The process is slow and careful. Each step is proved before proceeding. There must not be a single flaw anywhere. The mechanical part must be a harmonious unit. The chassis must be true. There must be a true mechanical relationship between each unit, otherwise one part may cause trouble.

In the design three groups of men are engaged in the work. The chief engineer is primarily concerned about the chassis. This is the most important work and he watches every step with minute care. One of his associates has in charge the design of the body while another looks after equipment. But all of the work is under the direction of the chief engineer.

When the engineering department is ready with its plans, that is when the car is ready "on paper," the general manager and sales manager are called in consultation. They go over the plans and ascertain the practicability of the model. These men represent the purchaser. They do not want to build anything that will not sell, so changes may be proposed, suggestions offered and in other ways is given advice. The executive, sales and engineering departments, in order to produce a worthy product, must cooperate to the fullest extent.

After the first car is completed it is taken on long runs, extending thousands of miles. As a rule the hardest routes are followed, for it is desired to prove to the entire satisfaction of the whole organization that the car has the necessary stamina. On these trips every item of importance is watched—the gasolene consumption, the power of the motor, the riding qualities and the action in general. All these things are observed. An engineer usually drives the car on trips like this and is accompanied by an expert mechanic.

These tests are followed by a close examination of the chassis on the return of the car. Every unit is disassembled and a careful examination is made of everything—the bearings, pistons, crankshaft, piston rings, transmission gears and rear axle gears. All this is done for the purpose of finding out any weakness or wear that may have occurred on the hard runs.

And it is only after every one is satisfied beyond a shadow of a doubt that actual production begins. Companies, as a rule, do not build less than fifteen hundred cars of a certain chassis. Let us suppose that it lists for $2,000. It is therefore necessary to purchase millions of dollars' worth of material. If the engineers have made a mistake or two the company stands to lose vast sums. And if such a car is marketed it may cost the company its reputation, so it behooves companies to be doubly sure in marketing a new model. And they are.

WEIGHT PROBLEM A STICKER

Here to Stay, Says Houpt, and You Can't Dodge It.

"The weight problem is with us this year," says Harry S. Houpt, "and it is here to stay. There is no dodging it. It reappears like a poor relation or a bad check. I have talked to some of the wealthiest and best known motor car owners hereabouts who are in the market for machines and they all declare for the car of light weight, with its coincident low cost of upkeep.

"There is no denying that these men know what they are talking about, and their views on the subject are all the more important as they can afford to pay any price they feel like for a machine. Your true type of wealthy man is economical, after all, and in this age of comparative values he feels rightly that it does not redound to his good business sense to dump his money in a hole in the ground.

"As a matter of fact the purchaser of a car selling for five or six thousand dollars cannot get anything near the purchase price when he wants to sell. He cannot 'pass it along to Sweeney,' for the latter won't pay. And it is too great a sacrifice for the social climber of limited means who likes to be seen in the type of car which his idol rides in."

Caruso Loval to Italian Car

Here is Enrico Caruso, the tenor, just about to step into his Lancia car, 1914 model. The picture was taken in Milan.

MORE SAXONS FOR HERE.

Factory Increases Allotment to 1,000 for Van Patten.

On account of the demand for the car in and about New York, the Saxon Motor Company has added 250 cars to the year's allotment of this territory, making 1,000 Saxons all told for distribution. The first shipment of Saxons reached New York last week.

"We have received so many inquiries from so many different sources," says L. A. Van Patten, New York distributer, "that we prevailed upon the factory to increase our allotment. This now means that a good many more will have the opportunity for earlier delivery than otherwise, as the early deliveries had practically all been taken on the previous basis. Orders are coming in fast and we are particularly well pleased with the number of big car owners who have bought Saxons."

Van Patten is closing up the outlying territory, and some of the biggest dealers in Westchester county and Long Island have taken on the Saxon line. In addition to Westchester county and Long Island, Van Patten's territory consists of Staten Island, Rockland county, Putnam county and Dutchess county, the last named county having been added the past week.

STEWART COMPANY MOVES.

Pullman Car Agency and Automobile School Change Base.

Announcement is made by the Stewart Automobile Company, who are New York distributors of Pullman automobiles and proprietors of the Stewart Automobile Academy, that they will move on March 10 from their present home in Fifty-fourth street to the Diamond Tire Building at Fifty-seventh street and Broadway.

The above named firms are well known to the public and moving to a more commodious building is for the purpose of being able to serve to better advantage their present and future customers.

"Fully Equipped" According to Case

...companies, "fully equipped" has varying significances. The Case, for in... windshield and electric starting and lighting, but electric horn, ... The picture shows a fully equipped Case 40.